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RCRA Waste Minimization Action Plan

THE RCRA

WASTE MINIMIZATION ACTION PLAN

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prepared

by

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THE RCRA WASTE MINIMIZATION ACTION PLAN

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SECTION 2 - KEY RCRA WASTE MINIMIZATION ACTIVITIES

Key Activities

ACRONYMS

ANPRM	Advanced Notice of Proposed Rule Making
ASTSWMO	Association of State and Territorial Solid Waste Management Officials
BDAT	Best Demonstrated Available Technology
CABD	Communication Analysis and Budget Division
CAD	Characterization and Assessment Division
CAP	Capacity Assurance Plan
CPB	Capacity Programs Branch
HSWA	Hazardous and Solid Waste Amendments
NACEPT	National Advisory Council on Environmental Policy and Technology
OAR	Office of Air and Radiation
OE	Office of Enforcement
OPPE	Office of Policy Planning and Evaluation
OPPT	Office of Pollution Prevention and Toxics
ORD	Office of Research and Development
OSW	Office of Solid Waste
OSWER	Office of Solid Waste and Emergency Response
OW	Office of Water
OWPE	Office of Waste Programs Enforcement
PPIC	Pollution Prevention Information Clearinghouse
PSPD	Permits and State Programs Division (OSW)
RCRA	Resource Conservation and Recovery Act
RDB	Regulatory Development Branch (OSW)
RED	RCRA Enforcement Division (OWPE)
RIP	RCRA Implementation Plan
SWB	Special Wastes Branch (OSW)
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
WMB	Waste Minimization Branch (OSW)
WMD	Waste Management Division (OSW)

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THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) WASTE MINIMIZATION ACTION PLAN

INTRODUCTION

Over the past several years, the U.S. EPA has emphasized pollution prevention as a preferred method of environmental protection over "end-of-pipe" treatment and disposal approaches. EPA Administrator William Reilly has continually stressed the importance of pollution prevention and has focused Agency resources on minimizing or eliminating the adverse effects of pollution in our lands, air, and water. Congress reinforced this approach by enacting the Pollution Prevention Act of 1990 that established a national policy on pollution prevention. EPA's implementation of the Resource Conservation and Recovery Act (RCRA) included pollution prevention as an integral element in all of its programs and will continue to do so.

To further EPA's pollution prevention goals, this plan has been developed to incorporate pollution prevention into various established RCRA activities. This document, the RCRA Waste Minimization Action Plan (referred to throughout this document as the "Action Plan"), outlines those activities expected to be implemented over the next five years that will integrate the Agency's Pollution Prevention concepts into the RCRA program. The Action Plan is divided into two major parts. Section I describes EPA's pollution prevention program; the goals of the Action Plan, including the Plan's four basic premises; and how the Action Plan was formulated. Section II identifies specific activities where source reduction and recycling will be pursued as part of RCRA projects or programs. This section describes specific projects and provides general time frames for completing these tasks.

SECTION I. BACKGROUND

A. EPA's Pollution Prevention Program

EPA's commitment to pollution prevention is part of an overall restructuring of the Agency's environmental agenda, spurred both by the magnitude and seriousness of the environmental risks that must be addressed in the 1990s and beyond, and our increasing understanding of the complexity of ecological systems. To address these environmental challenges, EPA issued a Pollution Prevention Strategy in January 1991.[1] This Strategy outlines EPA's pollution prevention policy and objectives, and is designed to:

- set forth a program that will achieve specific objectives in pollution prevention within a reasonable time frame, and
- provide guidance and direction for efforts to incorporate pollution prevention within EPA's existing regulatory and non-regulatory programs.

As one of the initial efforts to address the first objective, EPA initiated the 33/50 Project (formerly called the Industrial Toxics Project (ITP)). The 33/50 Project aims, through voluntary pollution prevention activities, to reduce releases and off-site transfers of a targeted set of 17 toxic chemicals from an aggregate of 1.4 billion pounds in 1988, to 938 million pounds by the end of 1992 (a 33 percent reduction) and finally down to 700 million pounds by the end of 1995 (a 50 percent overall reduction). Several components of this Action Plan target industries generating these 17 chemicals and can be useful in supporting EPA's 33/50 Project objectives.

[1] The Strategy was issued by the Pollution Prevention Office (formerly part of the Office of Policy Planning and Evaluation) which was reorganized under the Office of Pesticides and Toxic Substances.

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To meet its second objective, the Pollution Prevention Strategy promotes a risk reduction hierarchy that emphasizes in descending order of desirability: source reduction, environmentally sound recycling, proper treatment, and safe disposal. Under this hierarchy, source reduction is the first step for reducing risks to public health and the environment. The second step is environmentally sound recycling of wastes that cannot be reduced at the source. The third step, for wastes that cannot be prevented or recycled, is treatment in accordance with environmental standards designed to reduce both the hazard and volume of waste streams. The final step is to safely dispose of treatment residuals in a manner that minimizes the potential for environmental release.

The Pollution Prevention Strategy recognizes that the Agency will continue to promulgate and enforce regulations required under its various statutory authorities and that these regulations continue to provide incentives to prevent pollution by increasing the cost of managing waste and pollution. However, EPA firmly believes that for pollution prevention to succeed, it must be a central component of Agency programs designed to protect human health and the environment. To achieve this goal, the Agency is moving to incorporate pollution prevention into every facet of its program, including Regional operations, enforcement actions, regulations, permits, and research and development. Many pollution prevention activities are currently being conducted. Summaries of some of these activities can be found in the October 1991 EPA publication Pollution Prevention 1991: Progress on Reducing Industrial Pollutants.

This Action Plan describes EPA's plan to continue implementation of pollution prevention concepts into RCRA programs as part of EPA's integrated pollution prevention initiatives.

B. Integrating Source Reduction and Recycling into the National RCRA Program

The RCRA program divides waste into four broad categories:
- hazardous waste (approximately 240 million tons generated per year)[2]
- municipal wastes (approximately 180 million tons generated per year)
- industrial special wastes (approximately 5.2 billion tons of mining, cement kiln, oil and gas development, and utility wastes generated per year), and
- industrial nonhazardous waste (e.g., various sludges and food wastes) (approximately 7.6 billion tons generated per year)

The EPA programs addressing these four waste types are at various stages of development, as are the respective source reduction and recycling strategies.

EPA initiated the first elements of a hazardous waste pollution prevention program following the passage of the Hazardous and Solid Waste Amendments of 1984 (HSWA). This is because HSWA itself placed a higher priority on waste minimization than treatment or disposal of hazardous waste. In particular, Section 1003 of HSWA establishes that a national policy under RCRA shall be to "minimize the generation of hazardous waste by encouraging process substitution, materials recovery, properly conducted recycling, and reuse and treatment." In addition, several provisions were included in

[2] This figure does not take into account the impact of the new Toxicity Characteristics rule which will bring a significant volume of previously unregulated waste into the federal hazardous waste management system.

HSWA that were intended to minimize the generation of hazardous waste. One set of such provisions was the land disposal restriction requirements; these stringent land disposal restrictions created additional incentives for generators to look for ways to reduce the volume and/or toxicity of the hazardous waste they generate.[3] Another provision contained in the statute was the requirement for hazardous waste generators and treatment, storage, and disposal facilities to certify that they have waste minimization programs in place and to report on waste minimization efforts biennially.

In order to implement these provisions, EPA took an aggressive role in pursuing waste minimization as a primary national strategy. For example, as an initial action, a guidance entitled, "Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program" (1989), was drafted to assist the regulated community in complying with the requirement to have a waste minimization program in place. This document which has since been revised and renamed "Facility Pollution Prevention Guide" provides guidance to the regulated community by describing several basic waste minimization program elements which can be included in a facility's waste minimization program.

Also in 1989, OSW published "The Solid Waste Dilemma: An Agenda for Action." The central goals outlined in this document were to reduce the generation rate of municipal solid waste, and to manage safely and effectively those wastes which cannot be reduced or recycled. The "Agenda for Action" will be updated this year reflect the dynamic changes that have occurred in the past two years. In order to obtain further information on the "Agenda for Action", call EPA at 1-800-424-9346.

EPA also initiated a strategy for characterizing the industrial nonhazardous waste universe. EPA plans to work with States, industry, environmental groups and the public to identify potentially high risk industrial nonhazardous waste and waste management practices, as well as current industrial waste source reduction and recycling practices. Current projects include a review of State industrial waste programs, profiling specific industry waste generation and management problems, clarifying the definition of industrial solid waste, pilot recycling analyses of specific problem wastes, development and implementation of a pollution prevention strategy, and tasks to identify potentially high risk industrial nonhazardous wastes.

The Action Plan focuses on waste minimization activities for hazardous and special waste programs. As noted above, OSW's Municipal Waste Program has already been addressed in the "Agenda for Action". Efforts focusing on industrial nonhazardous waste are under way, but are not a primary focus of this document because the program is in its formative stages. In formulating the Action Plan, special consideration was given to the Agency's blueprint for a national pollution prevention program, past RCRA accomplishments, the mandates contained in RCRA, and the status and scope of various waste programs.

C. Goal of the RCRA Waste Minimization Action Plan

The overall goal of the Action Plan is to ensure cost-efficient protection of public health and the environment by contributing to a strong risk reduction program that encourages waste minimization, cooperative pollution prevention programs and special waste initiatives. As noted, the Action Plan's major initiatives are focused on hazardous waste and special waste source

[3] EPA conducted a study on the cumulative costs of the HSWA amendments entitled, "The Cost of Clean." The study found the costs for the amendments to be enormous and many sources, both within EPA and trade associations, have claimed that due to these costs, generators are striving to reduce waste. In addition, several Regulatory Impact Analyses have documented this generator response to specific waste regulations, and industry conversations with EPA support the assertion that the HSWA amendments have influenced generators to implement waste minimization programs.

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reduction and recycling programs. The Plan outlines efforts to expand ongoing waste minimization activities and integrate new initiatives into these developing programs. Because of the diverse nature of the RCRA program, the establishment of a specific goal or target for risk reduction is inappropriate at this time. The Plan's primary strategy relies on the continuous improvement and integration of source reduction and recycling initiatives into these programs. The Action Plan includes a range of activities which integrate pollution prevention through both RCRA regulatory and non-regulatory initiatives. The Agency has sought opportunities in RCRA to promote continued improvement in source reduction and recycling through:

- standard setting, including the listing of hazardous wastes and the establishment of Best Demonstrated Available Technology (BDAT) as a prerequisite for land disposal of hazardous waste;
- facility permitting;
- reporting requirements;
- support of State activities, including permitting, facility-level planning, and technical assistance;
- support of EPA Regional Office activities, including permitting, inspection, and enforcement;
- support of and coordination with EPA's Office of Waste Programs Enforcement, including RCRA inspection and enforcement;
- support of and coordination with EPA's Office of Research and Development; and
- support of and coordination with other EPA offices, including the Pollution Prevention Office, the Office of Air and Radiation, the Office of Water, and the Office of Toxic Substances.

We intend to report annually on the progress made in promoting source reduction and recycling in each of these areas, and to update this Action Plan, as appropriate.

D. Definition of Terms

The activities discussed in this Action Plan will be used to promote "waste minimization." To better understand this document, a few key terms are defined below:

"Source reduction" (as defined by the Pollution Prevention Act of 1990) - equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control (i.e., techniques for companies to track the use of toxic materials and resulting wastes). Source reduction does not include recycling, treatment, or disposal.

"Recycling" - using, reusing, or reclaiming materials/waste, including processes that regenerate a material or recover a usable product from it.

"Waste Minimization" - source reduction and the following types of recycling: (1) beneficial use/reuse, and (2) reclamation. Waste minimization does not include recycling activities whose use constitute disposal and burning for energy recovery.

"Pollution Prevention" - in industry implies efforts to reduce or prevent pollution at the source through cost-effective changes in production, operation, and raw materials use.

E. The Four Basic Premises of the RCRA Waste Minimization Action Plan

1. A wide variety of both regulatory and non-regulatory activities is needed to promote waste minimization, and while performance standards may prove useful in promoting waste minimization in some cases, they should not be the primary means by which EPA promotes waste minimization across industry.

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In the Hazardous and Solid Waste Amendments of 1984, Congress required EPA to study the issue of whether "standards of performance or other additional actions" for reducing hazardous waste generation were "feasible and desirable." EPA believes that production processes that would be the subject of waste minimization performance standards are generally much more complex than end-of-pipe treatment methods. RCRA regulatory development efforts would not necessarily result in standards that adequately fit the entire regulated community. The standards could be too strict for some firms while being too lax for others, and the degree of stringency would not generally be commensurate with the need for increased waste minimization efforts.

In accordance with the direction given under HSWA and the Pollution Prevention Act of 1990, the vast majority of EPA's pollution prevention initiatives, to date, have been non-regulatory in nature and have been designed to develop and disseminate information. The 33/50 Project and the transfer of pollution prevention technology through development and operation of the Pollution Prevention Information Clearinghouse (PPIC), various demonstration projects, and the State grant program all have been structured to foster voluntary compliance.

Nevertheless, EPA recognizes that there may be some technologies or processes where performance standards may be appropriate (on a case-by-case basis). In fact, EPA will consider source reduction and recycling methods in the development of some Best Demonstrated Available Technology (BDAT) standards and listings of hazardous waste as identified in this Action Plan. This is consistent with the stated goal for this Action Plan and the Pollution Prevention Strategy.

2. The Action Plan will incorporate source reduction and recycling concepts into the current EPA programs which are designed to safeguard public health by preventing the mismanagement of hazardous wastes, but have sometimes affected the Agency's ability to promote source reduction and recycling.

Promoting source reduction and recycling may require changes to the way EPA develops and implements certain of its programs. The Action Plan outlines the first steps for making short-term changes in certain RCRA programs. Activity VIII is specifically designed to collate all identified barriers as well as potential incentives for waste minimization as perceived by the generators of hazardous wastes. Many of the activities in the Action Plan will also examine the potential for short-term and long-term changes in these and other RCRA programs that will further foster source reduction and recycling.

These Action Plan activities should address EPA statutes and regulations which sometimes make it difficult to promote the use of source reduction and recycling in addressing environmental concerns. For example, the promulgation of a regulation may require the regulator to implement the rule by a certain date and may not afford the regulator the opportunity or incentive to look for source reduction and recycling solutions. Barriers to source reduction and recycling may not actually be single obstacles, such as a single regulatory or statutory provisions, but rather may be a combination of a number of environmental statutes, regulations, and policies imposed on the regulated community.

3. A cross-media perspective that addresses both toxicity and volume reduction is essential to promoting source reduction and recycling.

It is very difficult to separate the effects of the RCRA program from those of the air and water programs when promoting the changes to production processes involved in source reduction and recycling. Both the Pollution Prevention Act of 1990 and the Pollution Prevention Strategy (January 1991) reflect this fact in using the cross-media Toxics Release Inventory (TRI), rather than any of the Agency's single-program reporting requirements, as the basis for pollution prevention-oriented reporting requirements. A multi-media approach to reduce both toxicity and volume of waste also ensures that one program

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does not inadvertently transfer risks from one regulated medium to another. The permitting and barriers study activities identified in this Action Plan are intended to promote a cross-media perspective on toxicity and volume reductions.

As a result, this Plan has been structured to focus on multi-media issues whenever feasible and appropriate. Many of the activities described in this plan attempt to support multi-media pollution prevention initiatives, and therefore, many of these activities require support and participation from the other EPA media program offices.

4. The States are the central focus for source reduction and recycling activity, although EPA has an essential leadership role in the national pollution prevention program.

Hazardous waste generators, the primary subjects of source reduction and recycling programs, are most directly affected by State regulatory agencies rather than by EPA. Generally, permitting, inspections, enforcement, and reporting activities are implemented in partnership with the States. Facility source reduction and recycling programs should place emphasis on State agencies having lead responsibility, with EPA providing support.

F. Formulating the Action Plan

The RCRA Waste Minimization Action Plan is a combination of two efforts; a plan by the Waste Minimization Task Group composed of representatives from each OSW division, EPA Regions IV, V, and X, the Office of Pollution Prevention and Toxics, the Office of General Counsel, and the Office of Waste Programs Enforcement, and a plan developed by the Office of Waste Program Enforcement relating specifically to compliance monitoring and enforcement activities. This Task Group, chaired by the Waste Minimization Branch of the Waste Management Division, reviewed the latest source reduction and recycling developments in the Agency and States. In addition to the Pollution Prevention Act of 1990, the Pollution Prevention Strategy (January 1991), and 33/50 Project, the Task Group drew information from two other important sources.

- To begin the process, the Waste Minimization Branch analyzed and summarized the approximately one hundred and twenty responses to the October 5, 1990 *Federal Register* "Notice and Request for Comment on Desirable and Feasible Incentives to Reduce or Eliminate the Generation of Hazardous Waste," and provided a summary to the Task Group. A summary of the responses to the Federal Register Notice is contained in Appendix A.

- Second, the Waste Minimization Branch co-sponsored three focus groups in which other EPA program and Regional offices, States, industry, the environmental community, and other interested parties participated. Each focus group addressed a specific program area as follows:
  - the first focus group, cosponsored with EPA Region V, met in Chicago, Illinois and discussed waste minimization and permitting;
  - the second group, cosponsored with EPA Region IV, met in Atlanta, Georgia and discussed methods of evaluating waste minimization programs; and
  - the third group, cosponsored with the Pollution Prevention Office, met in Rosslyn, Virginia, and discussed waste minimization and standard setting.

The Task Group analyzed the results of the focus groups, including other sources of information, and drafted a general plan for incorporating waste minimization into RCRA standards, permits, reporting requirements, State grants, and technical assistance programs.

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SECTION II. KEY RCRA WASTE MINIMIZATION ACTIVITIES

The following section outlines the key activities that the Waste Minimization Task Group identified as critical elements of the RCRA Waste Minimization Action Plan. Each activity contains a brief discussion of various tasks along with general timelines for completing the tasks. EPA anticipates that these activities and the schedules set forth may change depending on the evolution of specific Action Plan goals and on budget and funding availability. While some activities are interrelated or similar, they have been intentionally presented separately to sharpen the focus of the Action Plan's specific tasks and to encourage the most effective assignment of available Agency resources. EPA has cross-referenced related tasks as well as those activities that directly impact each other.

All of the activities presented in the Action Plan are listed in the table below.

KEY ACTIVITIES

I.	Promoting RCRA Hazardous Waste Source Reduction and Recycling through Permitting
II.	Implementing Source Reduction and Recycling through RCRA Enforcement Activities
III.	Providing Outreach on OSW's Source Reduction and Recycling Activities
IV.	Evaluating Needs and Methodologies to Measure Waste Minimization
V.	Incorporating Source Reduction and Recycling in Future Listings
VI.	Incorporating Source Reduction and Recycling in the BDAT Process
VII.	Identifying and Promoting Source Reduction and Recycling Opportunities for Special Wastes
VIII.	Evaluating Generators' Perspectives on Incentives and Barriers to Waste Minimization
IX.	Evaluating Waste Minimization Projections Made in State Capacity Assurance Plans
X.	Improving Hazardous Waste Recycling Program Implementation
XI.	Providing Flexibility to Target RCRA State Grant Funds to Waste Minimization Needs
XII.	Demonstrating Source Reduction and Recycling at Specific Facilities
XIII.	Supporting Technical Assistance Efforts
XIV.	Managing and Supporting Implementation of the Action Plan

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I. PROMOTING RCRA HAZARDOUS WASTE SOURCE REDUCTION AND RECYCLING THROUGH PERMITTING

Objective:

Promote RCRA hazardous waste source reduction and recycling through the RCRA permitting program. The focus of this activity is to:

- provide permit writers with additional training so that they can discuss waste minimization concepts with, and provide waste minimization technical information to permittees,
- develop the RCRA permitting process to include consideration of cross-media impacts during the permitting development process, and
- understand what variables will influence or control the development of cross-media permitting program.

Background:

In 1976, the Office of Solid Waste (OSW) issued a statement outlining the hazardous waste management hierarchy along with proposed guidance for a waste minimization program. Despite this, waste minimization is not currently central to RCRA hazardous waste permits. As a first step to remedy this situation, the Permits and State Programs Division (PSPD), with Regional input, will prepare a policy statement on the importance of waste minimization. This statement will provide additional justification for permit writers seeking to foster waste minimization in the permits they issue.

In addition, many Regions and States are currently incorporating waste minimization requirements into their permits. To encourage the exchange of information regarding these experiences, PSPD will publish a document summarizing the use of waste minimization requirements in permits. This information will eventually be incorporated into the Pollution Prevention Information Clearinghouse (PPIC).

Source reduction and recycling efforts are especially important when there is little permitted treatment capacity, as with mixed hazardous and radioactive waste. When the surveys on the amount of mixed waste generated become available (some time in 1992), OSW will have more data to identify large volumes of mixed wastes and be able to target them for reduction in the future.

Finally, pollution control devices permitted under the Clean Air Act and the Clean Water Act generate significant quantities of hazardous waste (sludges, bottoms, bag-house and precipitator dusts, etc.). In this case, air and water permit writers will be provided with the procedures and training needed to assist firms to implement pollution prevention measures rather than shifting wastes from air or water streams into the RCRA waste stream.

Activity Description:

RCRA ACTIVITIES

- develop and publish a Facility Pollution Prevention Guide;
- prepare a policy statement for Regions and States reaffirming the importance of waste minimization in the management of hazardous waste;
- publish a document summarizing the use of waste minimization in permits and establish a mechanism to input this information into PPIC to allow systematic exchange of information among permit writers; and
- identify particular mixed waste streams for waste minimization based on a mixed waste survey.

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CROSS PROGRAM ACTIVITIES

EPA will support and draw from several cross-media source reduction and recycling pilot projects that are either currently in progress or are soon to be developed, including:

- initiatives taken by several EPA Regions to request and review the waste minimization plans of RCRA permittees and generators;
- the Amoco demonstration project, a joint EPA/Amoco effort focusing on identifying and implementing multi-media pollution prevention techniques as part of a cross-media permit development process; and
- State-sponsored projects in Kansas, Massachusetts, New Jersey, similar to the Amoco project in that they will focus on several specific industrial facilities to identify the best means of promoting or allowing source reduction and recycling through the permitting process.

Drawing from the projects discussed above EPA plans to:

- develop training programs and guidance to assist Federal and State RCRA permit writers; assist and provide training to air and water permit writers in assessing the RCRA implications of the air and water pollution control technologies being permitted;
- provide training to Regions and States on waste minimization guidance.
- identify two or more pilot Regions and pilot permittees within those Regions to begin to apply guidance for incorporating waste minimization into RCRA, air, and water permit issuance (May be in cooperation with States);
- per findings of the above pilot project, update the training programs and guidance developed to assist Federal and State RCRA permit writers;
- provide training to Regions and States on updated guidance and begin implementing in all Regions and authorized States.

Cross Reference to Activities: II, VI, XIII, XIV

I. PROMOTING RCRA HAZARDOUS WASTE SOURCE REDUCTION AND RECYCLING THROUGH PERMITTING

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
RCRA ACTIVITIES																				
I.1 Develop and publish the "Facility Pollution Prevention Guide". Responsibility: Lead: WMD/WMB; Team: WMD/WMB, Regions, States, OPPT, OWPE																				
I.2 Prepare with Regional input, policy statement on waste minimization in permitting. Responsibility: Lead: PSPD; Team: WMD/WMB, Regions, States, OPPT, OWPE																				
I.3 Develop document summarizing waste minimization activities in permitting. Responsibility: Lead: PSPD; Team: WMD/WMB, Regions																				
I.4 Identify waste minimization opportunities in mixed waste. Responsibility: Lead: PSPD; Team: WMD/WMB, Regions																				
CROSS PROGRAM ACTIVITIES (Optional)																				
I.5 Develop and publish guidance for RCRA, air, and water permit writers in assessing RCRA implications of air and water pollution control technologies being permitted. Responsibility: Lead: WMD/WMB, WMD/WTB; Team: OAR, OW																				
1.6 Provide training to Regions and States on I.5 guidance. Responsibility: Lead: WMD/WMB, WMD/WMB; Team: OAR, OW																				

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I. PROMOTING RCRA HAZARDOUS WASTE SOURCE REDUCTION AND RECYCLING THROUGH PERMITTING (Continued)

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
I.7 Identify two or more pilot Regions and pilot permittees within those Regions to begin to apply guidance for incorporating waste minimization into RCRA, air, and water permit issuance (May be in cooperation with States). Responsibility: Lead: WMD/WMB; Team: same as I.5																				
I.8 Update I.5 guidance per findings of I.7. Responsibility: Lead: same as I.5; Team: same as I.5																				
I.9 Provide training to Regions and States on updated guidance and begin implementation in all Regions and authorized States. Responsibility: Lead: same as I.5; Team: same as I.5																				

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II. IMPLEMENTING SOURCE REDUCTION AND RECYCLING THROUGH RCRA ENFORCEMENT ACTIVITIES

Objective:

To promote pollution prevention through the RCRA Enforcement Program. The focus of this activity is to:

- define the appropriate role of pollution prevention in enforcement;
- identify opportunities for fostering such prevention;
- implement those initiatives that balance EPA's enforcement objectives under RCRA with pollution prevention goals; and
- achieve effective use of enforcement authority to require and promote compliance and pollution prevention.

Background:

To date, EPA's strategy in promoting pollution prevention has been primarily voluntary. However, as discussed in the RCRA Implementation Study, (RIS) even within a voluntary scheme, the compliance and enforcement program can and should play a significant role in promoting pollution prevention.

Following up on the RIS, OWPE set out to find ways to foster pollution prevention/waste minimization activities through the enforcement program. OWPE believes that making pollution prevention objectives part of the enforcement program can not only bring owners/operators back into compliance, but further protect human health and the environment by reducing the generation of hazardous waste and lowering the potential for harm.

Activity Description:

OWPE will initiate and develop pollution prevention in enforcement through the following activities:

- OWPE will continue to provide flexibility to Regions and States to direct compliance monitoring and enforcement resources toward pollution prevention projects. The FY93 RCRA Implementation Plan (RIP) provides for Regions and States to direct up to 25% of their resources toward State and Regional enforcement priorities, including pollution prevention.

- As recommended in the RIS, OWPE will include a measure under the Strategic Targeted Activities for Results System (STARS) for pollution prevention projects in enforcement settlements in FY93. STARS is a management/accountability tool that focuses environmental protection activity on the highest priority program objectives.

The following activities will be conducted to evaluate and promote the use of Pollution Prevention and Waste Minimization in Enforcement Settlements:

- OWPE has been and will continue to assist Region 2 in implementing a "pilot" pollution prevention project with a Du Pont facility in Deepwater, NJ. This pollution prevention project creates a joint EPA-Du Pont technical workgroup which will publish the results of a waste minimization study of 15 processes from Du Pont's Chambers Works facility in Deepwater, NJ. It is intended that the results of this study will be useful to other industries in their attempts to implement pollution prevention/ waste minimization. The project is scheduled for completion in May 1993.

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• OWPE will draft RCRA specific guidance on including pollution prevention/waste minimization in enforcement settlements, based on its experience with the Du Pont case. The guidance will include a discussion on the following topics:
- Confidential Business Information
- Stipulated Penalties
- Penalty Mitigation
- Advice on successful and timely implementation of the pollution prevention/waste minimization project
- Using publicity to promote waste minimization and pollution prevention activities by requiring facilities which undertake pollution prevention projects, as part of enforcement settlements, to make results available to the public.

• OWPE received money from an Office of Enforcement 2% Set Aside project to fund Regional pollution prevention projects. This money is to provide technical assistance to those Regions which have included pollution prevention in an enforcement settlement and need technical expertise in either developing the project or in evaluating its progress.
- OWPE has funded a Region 8 proposal to train inspectors on waste minimization for an upcoming Regional enforcement initiative.
- OWPE will continue to evaluate and fund Regional proposals under OE's 2% Set Aside Project.

• OWPE is developing a pilot for an Environmental Extension Service. The pilot will provide small businesses and communities with RCRA regulatory and technical assistance. The services provided include environmental education and technical outreach focusing on pollution prevention and waste minimization technologies. In addition, the Environmental Extension Service will provide small businesses and communities with the "know-how" to establish and maintain recycling centers and services. In the long term, the service will facilitate the development of markets for secondary materials.

Cross Reference to Activities: I, VI, VII

• OWPE undertook a 2% Set Aside project to survey and analyze current Regional and State inspectors' efforts in waste minimization in order to develop a policy on the role of inspectors in waste minimization. A workgroup, comprised of HQ, Regional and State representatives, was formed to identify the Regional needs and concerns. The workgroup found that several issues needed further clarification:
- the role of a RCRA inspector in encouraging waste minimization
- the authority of RCRA inspector in enforcing waste minimization requirements
- guidance and training on the inspector's role in promoting waste minimization

• OWPE issued guidance, entitled The Role of the RCRA Inspector in Promoting Waste Minimization, in September of 1991. The guidance identifies the opportunities an inspector has to promote
waste minimization and encourages inspectors to engage in the following activities:
- checking the manifest for certification that the owner/operator has a waste minimization program in place
- checking the Biennial Report and Operating Record requirements
- checking waste minimization language included in the facility's permits, enforcement orders and/or settlement agreements
- distributing information on waste minimization technical assistance programs

• OWPE will continue to evaluate and seek feedback on the inspector policy and how it is being implemented by the Regions.

• OWPE will incorporate pollution prevention training into its Advanced RCRA Inspector Training Institute.

II. IMPLEMENTING SOURCE REDUCTION AND RECYCLING THROUGH RCRA ENFORCEMENT ACTIVITIES

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
II.1 Draft guidance on including pollution prevention and waste minimization for use in enforcement orders. Responsibility: Lead: OWPE; Team: OE, OPP, Regions, OWS																				
II.2 Continue to encourage use of RIP-FLEX to identify and promote pollution prevention projects. Responsibility: Lead: OWPE; Team: OSW, Regions																				
II.3 Evaluate Regional proposals for pollution prevention projects under OE's 2% Set Aside Funding.. Responsibility: Lead: OWPE; Team: OE, Regions, OSW																				
II.4 Incorporate pollution prevention/waste minimization into STARS Measures. Responsibility: Lead: OWPE; Team: Regions, OSW																				
II.5 Increase pollution prevention/waste minimization training for inspectors through the RCRA Inspector Institute. Responsibility: Lead: OWPE; Team: NEIC, Regions, OSW																				
II.6 Continue to particpate and assist Region 2's efforts in implementing the pollution prevention/waste minimization project under the Du Pont consent agreement. Responsibility: Lead: OWPE, Region 2; Team:OPP, ORD, OSW																				
II.7 Develop a pilot for an Enforcement Extension Service. Responsibility: Lead: OWPE, Team: Other Interested Headquarters and Regional Offices																				

OE-1-93

III. PROVIDING OUTREACH ON RCRA'S SOURCE REDUCTION AND RECYCLING ACTIVITIES

Objective:

One of our major goals in supporting EPA's pollution prevention initiative is to provide industry, States, Federal agencies, other EPA program offices, and the public with information in order to:

- focus industry's and government's attention on source reduction and recycling as the preferred methods of environmental protection;
- direct industry's attention to specific source reduction and recycling opportunities;
- provide State and other Federal programs the benefits of our experience; and
- engage the public, industry, and other government bodies in the larger policy issues involved in source reduction and recycling.

The goal of this activity is to develop and distribute to both industry and States information and material through the Pollution Prevention Information Clearinghouse (PPIC), and other technical assistance mechanisms.

Background:

EPA's strategy to encourage pollution prevention includes a proactive technical assistance program to all interested parties (industrial, regulatory, public interest, and individual). The Pollution Prevention Branch and Office of Research and Development has expended a large portion of their resources to develop and support a technical assistance network (including the PPIC) which is intended to provide a mechanism to transfer pollution prevention information. Future activities will focus on supporting established technical transfer programs and developing additional (and potentially independent) means to distribute technical information.

Activity Description:

To meet this objective, information will be collected on previous pollution prevention activities and, distribute to interested communities. In particular, information will be distributed on:

- special projects, such as the EPA/Amoco Project;
- a summary of past studies on incentives and barriers of source reduction and recycling programs; and
- case studies on pilot programs will be made available through outreach program and PPIC.

Cross Reference to Activities: I, II, VI, VII, VIII, XI, XIII, XIV

34-21

III. PROVIDING OUTREACH ON OSW'S SOURCE REDUCTION AND RECYCLING ACTIVITIES

	FY92				FY93				FY94				FY95				FY96			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
III.1 Publish, distribute, and speak in public on the activities of this action plan. Responsibility: Lead: WMD/WMB																				

ee-he

IV. EVALUATING NEEDS AND METHODOLOGIES TO MEASURE WASTE MINIMIZATION

Objective:

We will determine the various reasons to measure waste minimization; evaluate and prioritize these reasons; identify methodologies for evaluation to determine the utility in addressing the "whys" of measuring waste minimization; and implement an evaluation process.

Background:

EPA has established reporting requirements for hazardous waste generators and management facilities under the RCRA Biennial Report. In addition, Title III, Section 313 of the Superfund Amendments and Reauthorization Act of 1986, requires certain facilities to report air, water, and land releases, and transfers of waste to off-site locations.

Presently, these data gathering mechanisms limit measurement of waste minimization, both in level of detail and industry applicability. Further, the degree to which different measurement interests or needs can be met using the same data is currently unknown. However, it is becoming clear from the results of Phases I and II of Region X's Measurement of Waste Minimization Project that different organizations have different reasons to measure waste minimization. Many companies are interested in evaluating the effectiveness of their waste minimization programs, while State and Federal agencies use these program evaluations to target areas of greatest need for waste minimization and to measure State-wide and national progress. Waste minimization evaluations can also be used to monitor a company's compliance with the terms of an enforcement agreement imposing obligations to install and operate pollution prevention projects. In order to better address waste minimization measurement through data collection, it is necessary to:

- clearly understand the purpose behind the measurement;
- identify methodologies that satisfy specific purposes; and
- identify and collect the data elements required by the methodology.

Activity Description:

Region X, with support from OSW and Region V, will continue their current efforts to study the reasons for measuring waste minimization, as well as identify methodologies to be developed and tested that meet the various objectives of waste minimization measurement.

To address these issues, a Needs Assessment Workshop will be held in FY92 with representatives from State and Federal agencies, businesses, trade associations, research organizations, and public interest groups. The purpose of this workshop will be to explore the reasons for organizations to measure waste minimization.

Future phases of the project will seek to develop and test methodologies for specific measurement needs. This will include identifying measurement objectives which represent the varying priorities of different organizations. It will also identify the different kinds and/or levels of data required to meet these objectives. The results from these studies may be used to better understand the relative effectiveness of various State and Federal source reduction and recycling activities, and to update the procedure to evaluate source reduction and recycling projections made in State Capacity Assurance Plans.

OSW and other appropriate parties will then use this information to make decisions on the actions needed to better measure waste minimization, and to explore why organizations need/want to measure waste minimization.

Cross Reference to Activities: IX, X, XIII

IV. EVALUATING NEEDS AND METHODOLOGIES TO MEASURE WASTE MINIMIZATION

	FY92				FY93				FY94				FY95				FY96			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
IV.1 Determine and summarize the reasons why people need or want to measure waste minimization. Hold Needs AssessmentWorkshop to explore why measure waste minimization. Responsibility: Lead: Region X; Team: OSW, OPPT, States, Regions, CABD																				
IV.2 Evaluate/synthesize/prioritize the whys and determine which are important; which EPA can address. Responsibility: Lead: Region X; Team: OSW, OPPT, States, Regions, CABD																				
IV.3 Identify methodologies to address the various reasons for measuring waste minimization. Responsibility: Lead: TBD; Team: Same as V.1																				
IV.4 Test the methodologies to see how well they address the "whys." Responsibility: Lead: WMD/WMB; Team: IV.1																				
IV.5 Develop Agency strategy to incorporate findings into Information Management Strategy to address needs to Measure Waste Minimization. Responsibility: Lead: WMD/WMB; Team: OPPT, CABD, Regions, States, CABD																				

h2-h3

V. INCORPORATING SOURCE REDUCTION AND RECYCLING IN FUTURE LISTINGS

Objective:

OSW will specify or incorporate source reduction and recycling techniques and/or certain levels of production efficiency in hazardous waste listing determinations. In addition, OSW plans to provide longer lead times to industry, where appropriate, to allow newly regulated industries time to identify and develop prevention alternatives. The focus of this activity is to:

- develop a methodology for listing program staff to identify pollution prevention opportunities as part of the listing development process,
- identify standard criteria for incorporating pollution prevention incentives into listings, and
- promulgating new listings that include pollution prevention incentives.

Background:

There may be opportunities to specify source reduction and recycling techniques, or certain levels of production efficiency in promulgating hazardous waste listings. The Environmental Defense Fund (EDF) "mega-suit" requires EPA to conduct listing determinations on 14 waste categories. Further, Best Demonstrated Available Technology (BDAT) standards must be developed as part of these hazardous waste listing determinations. As such, it would be appropriate to consider waste minimization technologies as part of this process.

For example, OSW may be analyzing the mother liquor generated from an industrial production process, and may determine that the presence of reactant in the mother liquor dictates the extent to which the mother liquor is hazardous. If reaction efficiency is below 99%, the mother liquor would be considered hazardous, while if reaction efficiency is above 99%, the mother liquor would be considered non-hazardous. Rather than listing all waste from such production processes as hazardous, OSW could write a listing for a mother liquor generated from the process that achieves less than 99% reaction efficiency.

In addition, where appropriate, it may be possible to alert the effected industry earlier to the possibility of listing and work with it to develop source reduction and recycling strategies. (This is currently being done with the manufacturers of azo dyes.)

Activity Description:

In order to use listing as a means to promote source reduction and recycling, OSW will identify industrial processes (based on the EDF/EPA settlement) which:

- are amenable to source reduction and recycling approaches;
- generate releases of chemicals targeted by the 33/50 Project; and
- have important cross-media impacts.

OSW will then identify those source reduction and recycling technologies which will assist a firm from generating a hazardous waste, and consider listing only those wastes generated from production processes that do not use such source reduction and recycling technologies.

Cross Reference to Appendices: I, II, VII, XIII, XIV

341-25

V. INCORPORATING SOURCE REDUCTION AND RECYCLING IN FUTURE LISTINGS

	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Petroleum Refining			Activity 1						
					Activity 2				
							Activity 3		
Organobromines		Activity 1							
			Activity 2						
					Activity 3				
Paper/Pulp							Activity 1		
Inorganics					Activity 1				
						Activity 2			
								Activity 3	
Carbamates		Activity 1							
			Activity 2						
					Activity 3				
Paint					Activity 1				
						Activity 2			
								Activity 3	
Chlorinated Aliphatics			Activity 1						
				Activity 2					
						Activity 3			

Activity One - Identify Industrial Process/Generate Waste Management Assesment
Activity Two - Work With Industry Identify Source Reduction and Recycling/Incorporate in Rules
Activity Three - Evaluate How Identified Source Reduction and Recycling Techniques Reduce Waste

3 of 6

V. INCORPORATING SOURCE REDUCTION AND RECYCLING IN FUTURE LISTINGS (Continued)

	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Solvents II			Activity 1						
				Activity 2					
						Activity 3			
Solvents III						Activity 1			
							Activity 2		
									Activity 3
Dioxins: Surface Protection (F033)	Activity 1								
		Activity 2							
				Activity 3					
Azo/Benzidine Dyes		Activity 1							
			Activity 2						
					Activity 3				
Anthraquinone Dyes			Activity 1						
				Activity 2					
						Activity 3			
Triarylmethane Dyes					Activity 1				
						Activity 2			
								Activity 3	

LE-hE

VI. INCORPORATING SOURCE REDUCTION AND RECYCLING IN THE BDAT PROCESS

Objective:

Under this activity, EPA will work to incorporate source reduction and recycling in the Best Demonstrated Available Technology (BDAT) development process by conducting specific test cases for well defined listed/characteristic wastes. The focus of this activity is to:

- investigate, develop, and implement a procedure for considering source reduction and recycling techniques in the development of BDAT standards, and
- promulgate BDAT standards that either are based upon available source reduction or recycling techniques (if authority exists) or describe such techniques that can aid generators in meeting BDAT standards.

Background:

EPA has identified and is in the process of promulgating treatment standards for "newly listed wastes." Of these newly listed wastes, Mining and Mineral Processing and Wood Preserving, in particular, are expected to be difficult subjects for BDAT development. However, source reduction and recycling are thought to be primary candidates for these wastes. The EDF "mega-suit" consent decree requires EPA to make 14 listing determinations over the next several years. Generally, EPA will develop BDAT in conjunction with any decision to list a waste. In addition, the consent decree requires EPA to develop BDAT for numerous existing hazardous wastes. This decree provides EPA with additional opportunities to consider incorporating waste minimization in the BDAT process.

Phase 2 Newly Listed Wastes (4/93 Final Rule)

- Contaminated Soil
- Toxic Characteristic - 26 Recently Added Organics (D018 -D043)
- D004 - D017 that were not Extraction Procedure (EP) toxic
- Coke by-products - proposed
- Chlorotoluene Production - proposed

Phase 3 Newly Listed Wastes (3/94 Final Rule)

- Characteristic Mineral Processing Wastes from over 20 Industries
- Remanded Bevill (K064 - K066/K090/K091) - (if relisted)
- Wood Preserving (F033 - F035)
- Aluminum Potliners (K088)

BDAT standards will be developed for all future listings in accordance with the EDF/EPA negotiated settlement and the listing determination schedule in the proposed consent decree. Six months after final listing determination, BDAT will be promulgated for newly listed wastes (for complete and detailed BDAT promulgation schedule see the attached table).

Activity Description:

In developing BDAT standards for post-HSWA wastes, EPA has published two Advanced Notice of Proposed Rule Makings (ANPRM) asking for relevant source reduction and recycling methods (May 30, 1991, 56 FR 24444-24465, and October 24, 1991, FR 55160-55189). In addition, EPA will hold meetings with industry to identify source reduction and recycling opportunities, and will incorporate such opportunities in the proposed and final rules. EPA will, at a minimum, perform such evaluations for two Phase 2 wastes in addition to the Wood Preserving and Mineral Processing wastes. This activity will focus,if possible, on industries and wastes targeted by the 33/50 Project but will also target listed wastes not included in the 33/50.

Cross Reference to Activities: I, II, VI, IX, XIII, XIV

34-28

VI. INCORPORATING SOURCE REDUCTION AND RECYCLING IN THE BDAT PROCESS

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
VI.1 Two ANPRM's asking about source reduction and recycling opportunities for newly listed wastes. Responsibility: Lead: WMD/WTB; Team: WMD/CPB																				
VI.2 Respond to ANPRM comments on source reduction and recycling for Phase 1 wastes and incorporate source reduction and recycling as BDAT, where appropriate, and publish: Responsibility: Lead: WMD/WTB; Team: WMD/WMB, ORD																				
a. Proposed Rule																				
b. Final Rule																				
VI.3 Review ANPRM comments on source reduction and recycling for Phase 2 and Phase 3 wastes. Responsibility: Lead: WMD/WTB; Team: WMD/WMB																				
VI.4 Respond to ANPRM comments on source reduction and recycling for Phase 2 wastes, incorporate source reduction and recycling into BDAT for a minimum of two industries, where appropriate, and publish: Responsibility: Lead: WMD/WTB, WMD/WMB; Team: ORD																				
a. Proposed Rule																				
b. Final Rule																				

5e-h3

VI. INCORPORATING SOURCE REDUCTION AND RECYCLING IN THE BDAT PROCESS (CONTINUED)

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
VI.5 Work with industry to identify source reduction and recycling opportunities and cross-media impacts for Phase 3. Responsibility: Lead: WMD/WMB, WMD/WTB; Team: ORD																				
VI.6 Respond to source reduction and recycling activities for Phase 3 wastes, incorporate source reduction and recycling into BDAT for Mineral Processing. Wood Preserving industries, where appropriate and any others deemed appropriate and develop/publish: Responsibility: Lead: WMD/WMB, WMD/WTB; Team: CABD/CAD, ORD																				
a. Proposed rule																				
b. Final rule																				

03-130

VII. IDENTIFYING AND PROMOTING SOURCE REDUCTION AND RECYCLING OPPORTUNITIES FOR SPECIAL WASTES

Objective:

OSW will identify and promote source reduction and recycling opportunities for special wastes. This activity is designed to:

- continue the study of large volume waste generating processes to identify source reduction and recycling alternatives,
- integrate pollution prevention concepts (including, but not limited, to technical reduction standards) into forthcoming guidance, and
- support on-going and future research efforts on large volume wastes concerning pollution prevention opportunities.

Background:

The opportunities for waste minimization for Special Wastes appear promising. RCRA Section 8002 requires the Agency to study and issue summary reports to Congress regarding special wastes. Special wastes are characterized by high volume and low toxicity. These wastes, comprised of mining wastes, crude oil and natural gas exploration and production wastes, cement kiln dust wastes, and wastes from the combustion of fossil fuels, were exempted from RCRA characterization as "hazardous wastes" in 1980 by the Bevill and Bentson Amendments.

EPA must address, among other things, the adequacy of current and potential measures to utilize such wastes. The mining, mineral processing, oil and gas, and coal-fired utilities reports to Congress contain this information and can serve as a basis from which additional source reduction and recycling work can be initiated. The Cement Kiln Dust Waste Report to Congress that is being prepared during FY 91-93 will also contain such information. The oil and gas study mandate contains an additional and relevant requirement: to prepare a Research, Development and Demonstration (RD&D) Plan. The regulatory determination for oil and gas wastes contained an Agency commitment to develop a list of recommended topics for the RD&D Plan for Federal agencies, States, and industry to pursue, including materials substitution and recycling/reuse.

In addition, waste minimization is one of the five major themes of the National Energy Strategy (NES) that are directly associated with EPA's waste management activities. NES calls for reduction of quantity, persistence, and toxicity of energy related wastes, promotion of research and outreach coordinated by Department of Energy (DOE) and EPA, and minimization of industrial waste generation to conserve energy.

Progress has already been made in the Special Wastes arena regarding waste minimization. Chevron has instituted its "Save Money and Reduce Toxics (SMART)" program in the oil patch which seeks to replace or reduce the usage of toxic chemicals. By the end of 1989, Chevron had reduced their waste by sixty percent. Also, OSW and OTS are working cooperatively to develop a program emphasizing source reduction and recycling under the Toxic Substances Control Act (TSCA). The program will address the two principal wastes from the phosphoric acid industry -- phosphogypsum and process wastewater.

Activity Description:

OSW will identify and promote source reduction and recycling opportunities for special wastes by:

- A series of investigations will be undertaken to identify opportunities for source reduction and recycling in each of the special waste areas. The development of the oil and gas investigation will be coordinated with a waste minimization project recently initiated by the American Petroleum Institute (API) for oil and gas exploration and production operations. The API effort focuses on three areas: developing methods for measuring waste minimization, estimating cost savings, and developing information for use by State legislatures. The mining investigation will be coordinated with the Western Governors

Association (WGA) and Interstate Mining Compact Commission (IMCC), both of which have recently completed review of their existing State regulatory programs and have expressed an interest in having a national program that encourages waste minimization.

- Based on the investigations, source reduction and recycling will be made known to the mining industry. Similarly, source reduction and recycling will be made known to the oil and gas industry. As opportunities for source reduction and recycling are identified, the OSW Special Wastes Branch will work with the Interstate Oil and Gas Compact Commission (IOGCC), Society of Petroleum Engineering (SPE), API, WGA, and IMCC to develop technology transfer processes (papers, conferences, training) to encourage the adoption of source reduction and recycling techniques. The oil and gas program will determine the feasibility of creating a group composed of industry, environmentalists, and States to informally discuss waste reduction issues. This group may ultimately develop into a federal advisory committee.

- The Special Waste Branch will continue the development of a program under TSCA, including source reduction and recycling opportunities, that will address phosphoric acid production practices and processes to reduce the risks posed by phosphogypsum waste and process wastewater. The Branch has already completed studies of waste handling practices at a number of facilities and will determine the feasibility of source reduction and recycling options at those plants. Under TSCA Section 6, the Agency has the authority to prohibit or regulate any manner or method of disposal of a chemical substance or mixture by anyone who uses or disposes of it for commercial purposes. Most importantly, TSCA can be used to effectively explore, promote, and enforce pollution prevention and/or source reduction approaches in the phosphoric acid production industry. A program developed under TSCA could be in the form of regulations or non-regulatory industry guidelines, or a combination of the two.

- For oil and gas, EPA has committed to clarify its regulatory determination for liquid and solid wastes for tank bottom and crude oil reclaimers. These operations sell nearly 3 million barrels of crude oil reclaimed from waste annually, thus preventing its release into the environment.

- Preparation of the oil and gas Research, Development and Demonstration (RD&D) plan mandated by RCRA Section 8002(m) (2) will commence, with substantial emphasis on source reduction and recycling. Such a plan may include descriptions of a series of research activities leading towards determining the feasibility of source reduction and recycling options. EPA's regulatory determination identified source reduction and recycling (materials substitution and recycling/reuse) as areas of interest for the RD&D Plan.

- There have been recent technical changes in the operation of froth flotation circuits in the beneficiation of lead ore. Research indicates that computer control over the application rate of chemicals in the beneficiation circuit of lead ore can lead to reduced use of chemicals, a finished ore which contains less residual waste, and a reduction of air emissions at smelters using the purer ore. This effort would evaluate the use of computer control of a beneficiation circuit at an operating lead mine and determine if this method could be applied to other metal mining operations.

Cross Reference to Activities: I, II, XIII, XIV

34-32

VII. IDENTIFYING AND PROMOTING SOURCE REDUCTION AND RECYCLING OPPORTUNITIES FOR SPECIAL WASTES

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
VII.1 Scoping Study Determine source reduction and recycling in: Responsibility: Lead: WMD/SWB; Team: WMD/WMB																				
a. mining																				
b. oil/gas																				
c. cement kilns																				
d. utility																				
VII.2 Integrate source reduction and recycling into guidance for the sectors listed below. Responsibility: Lead: WMD/SWB; Team: WMD/WMB																				
a. mining																				
b. oil/gas																				
VII.3 Phosphoric Acid source reduction and recycling Responsibility: Lead: WMD/WMB																				
VII.4 Tank bottom/oil reclaimer source reduction and recycling study. Responsibility: Lead: WMD/SWB; Team: WMD/WMB																				
VII.5 Oil/gas RD&D plan documents Responsibility: Lead: WMD/SWB; Team: WMD/WMB																				
VII.6 Source reduction and recycling opportunities in Lead Beneficiation. Responsibility: Lead: WMD/SWB; Team: WMD/WMB																				

VIII. EVALUATING GENERATORS' PERSPECTIVES ON INCENTIVES AND BARRIERS TO WASTE MINIMIZATION

Objective:

Our goal is to understand the critical factors in generators' decisions to implement source reduction and recycling projects. Also, to identify the regulatory and non-regulatory barriers that currently obstruct additional project implementation. This activity will be developed to:

- continue with on-going investigations of generators and their motivations behind implementing projects, specifically technical projects and motivations behind these projects or what other technical factors discourage other pollution prevention initiatives;
- identify, using the results of these investigations, future data requirements and information needs to measure progress and target future EPA waste minimization efforts to address identified barriers;
- identify where EPA, State and local regulations hinder adoption of waste minimization initiatives. Specifically, identify those regulatory variables that most directly impact decisions to adopt or develop waste minimization initiatives; and
- better report the progress of the voluntary waste minimization effort to Congress, industry and the public.

Background:

A large number of activities exist at the Federal, State, and local level that provide assistance to generators in reducing their waste. While these activities have been steadily increasing in number and scope during the past five years, there is little information available as to the efficacy of these activities relative to specific industries and more importantly, processes. By querying generators on their source reduction and recycling projects, we will be able to better understand how and to what extent do State, local and federal efforts fill generators' needs. In addition, we will also find out what regulatory and non-regulatory barriers exist.

Activity Description:

A cross-office EPA team, led by OSW, will develop a methodological framework to investigate generator's pollution prevention/waste minimization experiences. This methodology will be reviewed and revised with input from a subcommittee of the National Advisory Committee on Environmental Policy and Technology (NACEPT, an EPA advisory committee). In addition, it will be informed by the Waste Minimization Measurement Project.

This project along with Activity V will help identify which data elements we should be collecting in the Biennial Report in order to better understand pollution prevention progress.

Cross Reference to Activities: V, X

VIII. EVALUATING GENERATORS' PERSPECTIVES ON INCENTIVES AND BARRIERS TO WASTE MINIMIZATION

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
EVALUATION																				
VIII.1 Hold a focus group meeting on evaluation of pollution prevention programs. Responsibility: Lead: WMD\WMB; Team: OPPT, Region IV																				
VIII.2 Form work group to identify potential users of study. Responsibility: Lead: WMB; Team: OPPT, NACEPT, OAR, OW, Region X, ORD.	Completed																			
VIII.3 Produce compendium of Incentives and Barriers studies completed to date. Responsibility: Lead: same as (2); Team: same as (2)																				
VIII.4 Develop methodology to identify generators' perspectives on incentives barriers to waste minimization. Responsibility: Lead: same as (2); Team: same as (2)																				
VIII.5 Review methodology with NACEPT, revise as necessary. Responsibility: Lead: same as (2); Team: same as (2)																				
VIII.6 Obtain OMB approval for data collection vehicle. Responsibility: Lead: same as (2); Team: same as (2)																				

VIII. EVALUATING GENERATORS' PERSPECTIVES ON INCENTIVES AND BARRIERS TO WASTE MINIMIZATION (Continued)

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
VIII.7 Collect data from targeted generators. Responsibility: Lead: same as (2) Team: same as (2)																				
VIII.8 Analyze data. Responsibility: Lead: same as (2); Team: same as (2)																				
VIII.9 Summarize and publish report.. Responsibility: Lead: same as (2); Team: same as (2)																				
BIENNIAL REPORT MODIFICATION																				
VIII.10 Identify information needs for collection in Biennial Report. Responsibility: Lead: WMD/WTB; Team: CABD, CAD																				
VIII.11 Identify modifications to the Biennial Report. Responsibility: Lead: WMD/CABD; Team: CAD, Regions																				
VIII.12 Complete revisions to Biennial Report. Responsibility: Lead: CABD; Team: WMD, CAD, Regions																				
VIII.13 Publish modified 1995 Biennial Report Form/Regulation. Responsibility: Lead: CABD																				

IX. EVALUATING WASTE MINIMIZATION PROJECTIONS MADE IN STATE CAPACITY ASSURANCE PLANS

Objective:

We will develop criteria that the Agency can use to evaluate waste minimization projections reported in State Hazardous Waste Capacity Assurance Plans. To accomplish this, this activity will be developed to:

- identify and refine methodologies States can use to portray base years and waste minimization projections,
- provide States the opportunity to test and refine measurement methodologies, and
- incorporate standardized measurement methodologies into the Capacity Assurance process (as well as provide these methodologies to other EPA programs that might benefit from such protocols).

Background:

Several States have predicated their assurance of hazardous waste management capacity in part on progress in minimizing waste. Further, EPA has not identified how States should consider or account for waste minimization in developing a CAP. In addition, EPA has not yet developed a means for substantiating such projections.

Activity Description:

A team, led by OSW, will work with State CAP coordinators, Regions, and other stakeholders in developing criteria to evaluate source reduction and recycling statements made in State CAPs. For future evaluations of CAP waste minimization projects in 1995, EPA may use results from the Region X Measurement Project (in addition to other sources) to provide an empirical basis on which to update the procedure to evaluate source reduction and recycling projections made in State CAPs.

Cross Reference to Activities: V, IX

34-31

IX. EVALUATING WASTE MINIMIZATION PROJECTIONS MADE IN STATE CAPACITY ASSURANCE PLANS

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
IX.1 Work group formation. Responsibility: Lead: WMD/CPB; Team: WMD/WMB, Regions, OPPT, States, ASTWMO, Roundtable																				
IX.2 Provide empirical basis (if any); develop criteria to evaluate source reduction and recycling projections made in CAPs. Responsibility: Lead: WMD/CPB; Team: WMD/WMB, Regions, OPPT, States, ASTWMO, Roundtable																				
IX.3 Publish and distribute to States the criteria for evaluating waste minimization projections made in the CAPs. Responsibility: Lead: WMB/CPB; Team: WMB/WMD																				
IX.4 Obtain comments on criteria. Revise criteria based on comments. Responsibility: Lead: WMD/CPB; Team: WMD/WMB, Regions, OPPT, States, ASTWMO, Roundtable																				
IX.5 Evaluate waste minimization projections in CAPs. Responsibility: Lead: WMD/CPB; Team: WMD/WMB, Regions, OPPT, States, ASTWMO, Roundtable																				
IX.6 Review criteria used in evaluation 1993 waste minimization projections. Revise criteria, if necessary. Responsibility: Lead: WMD/CPB; Team: WMD/WMB, Regions, OPPT, States, ASTWMO, Roundtable																				

8-13-92

X. IMPROVING HAZARDOUS WASTE RECYCLING PROGRAM IMPLEMENTATION

Objective:

We will pursue activities which encourage environmentally sound recycling and improve implementation of the RCRA regulatory program as it applies to hazardous waste recycling. Specifically, OSW will:

- investigate regulatory requirements to identify means to promote hazardous waste recycling, and
- develop incentives (regulatory and non-regulatory) for generators to recycle hazardous wastes.

Background:

During the past year, EPA has worked on evaluating the current RCRA regulatory program as it applies to hazardous waste recycling, with particular focus on the issues of RCRA jurisdiction. Some of the more noteworthy projects include:

- the RCRA Implementation Study (RIS);
- the Waste Minimization Incentives Notice and Request for Additional Comment (55 FR 40881, October 5, 1990 and 55 FR 50852 December 11, 1990); and
- a series of three forum meetings held with representatives of interested parties involved in the hazardous waste management field, including EPA Regional offices, State regulatory agencies, industry and trade associations, environmental advocacy groups, and the waste treatment industry.

Activity Description:

OSW will engage in a number of activities to encourage environmentally sound recycling by integrating recycling considerations into hazardous waste identification, tailoring regulatory requirements, and developing appropriate generic exclusions or exemptions to the hazardous waste rules.

In addition, OSW will support Waste Systems Information (WSI) and the Pacific Materials Exchange (PME) to demonstrate computer networks for waste exchanges.

Cross Reference to Activities: I, VI

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X. IMPROVING HAZARDOUS WASTE RECYCLING PROGRAM IMPLEMENTATION

	FY92				FY93				FY94				FY95				FY96			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
X.1 Special Collection System Rule Responsibility: CAD/RDB				FINAL RULE																
X.2 Waste-Derived Cement notification rule. Responsibility: CAD/RDB								FINAL RULE												
X.3 Metal Reclamation Rule Responsibility: CAD/RDB										FINAL RULE										
X.4 Other Waste-Derived Products Rule Responsibility: CAD/RDB												FINAL RULE								
X.5 Support through grant partnership of the Waste Systems Information and the Pacific Materials Exchange. Responsibility: Lead: WMD/WMB																				

XI. PROVIDING FLEXIBILITY TO TARGET RCRA STATE GRANT FUNDS TO WASTE MINIMIZATION NEEDS

Objective:

We will use the existing flexibility of the RCRA Implementation Plan (RIP) to specifically empower States to use grant funding to implement State waste minimization activities. The focus of this activity is to clarify the RIP and the ability of the States to use grant resources for waste minimization projects and prioritization rather than the review of the facility planning requirements. We will accomplish this activity through two mechanisms:

- EPA will clarify in the Regional Implementation Plan that waste minimization activities are at the top of the waste management hierarchy and reaffirm that States may use their discretionary grant funds to underwrite such activities.
- In doing so, EPA will encourage States and Regions to elevate the priority of facilities requesting a permit with a view toward accomplishing pollution prevention at those locations.

Background:

Several States have passed laws requiring certain sectors of the regulated community to develop source reduction and recycling plans. These State laws are consistent with the spirit of the provisions in HSWA requiring each generator to certify that it has a waste minimization program in place. From these plans, States may be able to identify facilities with substantial opportunities for waste minimization. By elevating the priority of these operations for permitting through the RIP, States may use their grant funds to foster waste minimization.

Activity Description:

In the future, we will meet this objective by allowing (through the RCRA Implementation Plan), States and Regions the flexibility to upgrade the priority of facilities for activities based upon their waste minimization potential. To develop this flexibility, we will study the potential impacts that such a change may have on RCRA implementation. Further, we will develop specific criteria that will assist States in determining which types of waste minimization activities should be considered for support.

Cross Reference to Activities: I, XIV

XI. PROVIDING FLEXIBILITY TO TARGET RCRA STATE GRANT FUNDS TO WASTE MINIMIZATION NEEDS

	FY91				FY92				FY93				FY94				FY95			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
XI.1 Clarify the flexibility that States and Regions have to upgrade the priority of facilities for activities based upon their waste minimization potential in future RCRA implementation plans. Responsibility: Lead: PSPD; Team: WMD/WMB, OWPE/RED, OPPT, Regions, OE																				

XII. DEMONSTRATING SOURCE REDUCTION AND RECYCLING AT SPECIFIC FACILITIES

Objective:

Demonstration programs can provide EPA, States, industry, and other interested parties with valuable information concerning source reduction and recycling. Specifically, by supporting source reduction and recycling demonstrations in a few high-visibility industrial facilities, EPA can develop information concerning:

- the environmental and economic gains associated with source reduction and recycling;
- the incentives and disincentives to source reduction and recycling created by regulations and their proper enforcement;
- alternative regulatory strategies that might leverage additional incentives for reduction and recycling; and
- the interaction between the air, water, and solid waste regulations and their impact on cross-media transfers and reduction/recycling incentives.

The benefits of this program include EPA-provided technical assistance to industry, specific technical case studies, and environmental gains. Lessons learned through such efforts will have use and applicability throughout EPA program offices.

Activity Description:

EPA will develop such demonstrations by:

- identifying a number of major industrial firms by order of preference that are (a) involved in the 33/50 Project, (b) major generators of a hazardous waste stream for which there is a treatment/disposal capacity shortage, or which is hard to treat, (c) located in high-priority geographic areas, including international borders, and (d) facilities which are not participating in the 33/50 project or do not release 33/50 pollutants.
- selecting two major Federal facilities participating in the EPA Federal facilities pollution prevention initiatives (e.g., the Risk Reduction Engineering Laboratory's (RREL) Waste Reduction Evaluations At Federal Sites (WREAFS) program, or the Pollution Prevention Branch's (PPB) Tidewater Interagency Pollution Prevention Program, etc.)
- working with these industrial and Federal facilities to identify and implement source reduction and recycling opportunities, by helping each facility to (a) identify sources and quantities of waste, (b) prioritize the waste streams according to impact on human health and environment, (c) identify source reduction and recycling options relevant to the high priority sources of waste, (d) choose the source reduction and recycling methods to be implemented, and (e) support implementation of the methods.
- providing high visibility for the process and findings at each facility through press releases and public recognition.

In the past, the Waste Minimization Branch supported one such demonstration effort at the Amoco-Yorktown refinery. The effort focused on identifying and implementing multi-media pollution prevention techniques as part of a cross-media permit development process. WMB plans to support EPA source reduction and recycling projects at specific facilities for FY92 and FY93. (The ability for EPA to conduct as many demonstrations as indicated will depend on funding in future years.) EPA plans to conduct up to two industrial case studies similar to and based on the success of the joint EPA/Amoco project. Shell Oil and Hughes Aircraft have agreed to investigate their potential participation in these case studies.

The Model States Cross-Media Permitting Project will explore cross-media permit programs in Kansas, Massachusetts, and New Jersey that are obtaining source reduction and recycling gains. The findings from this program will be disseminated to interested States. This program will be supported by Headquarters, Regional and State-based technical assistance and evaluation. These studies will be made available in the PPIC.

Cross Reference to Activities: I, III, VII, XIV

XII. DEMONSTRATING SOURCE REDUCTION AND RECYCLING AT SPECIFIC FACILITIES

	FY92				FY93				FY94				FY95				FY96			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
XII.1 Begin planning phase of demonstration projects by applying the lessons learned from EPA/AMOCO project. Responsibility: Lead: WMD/WMB; Team: TBD																				
XII.2 Determine potential Federal Facilities for source reduction poject and resource allocation issues with other Federal Agencies. Responsibility: Lead: WMD/WMB; Team: TBD																				
XII.3 Facility #1 - Federal facility - establish a workgroup to plan out the following activities concerning source reduction and recycling project. Responsibility: Lead: WMD/WMB; Team: TBD																				
A) Environmental audit of selected site.																				
B) Assess current source reduction and recycling practices.																				
C) Assess alternative source reduction and recycling practices.																				
D) Identify the environmental and economic benefits of source reduction and recycling.																				
E) Cost/Benefit analysis.																				
F) Produce Final Report.																				
XII.4 Facility #2 & #3 - identify two major industrial firms and establish a workgroup consisting of EPA and facility employees to plan out the following activities concerning the source reduction and recycling projects. Responsibility: Lead: WMD/WMB; Team: TBD																				
A) Environmental audit of selected sites.																				
B) Assess current source reduction and recycling practices.																				
C) Assess alternative source reduction and recycling practices.																				
D) Identify the environmental and economic benefits of source reduction and recycling.																				
E) Cost/Benefit analysis.																				
F) Produce Final Report.																				

XII. DEMONSTRATING SOURCE REDUCTION AND RECYCLING AT SPECIFIC FACILITIES (Continued)

	FY92				FY93				FY94				FY95				FY96			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
XII.5 Facility #4 - Federal facility: establish a workgroup to plan out the following activities concerning source reduction and recycling project. Responsibility: Lead: WMD/WMB; Team: TBD																				
A) Environmental audit of selected site.																				
B) Assess current source reduction and recycling practices.																				
C) Assess alternative source reduction and recycling practices.																				
D) Identify the environmental and economic benefits of source reduction and recycling.																				
E) Cost/Benefit analysis.																				
F) Produce Final Report.																				
XIII.6 Facilities #5 & #6 - Identify two major industrial firms establish a workgroup consisting of EPA and facility employees to plan out the following activities concerning the source reduction and recycling projects. Responsibility: Lead: WMD/WMB; Team: TBD																				
A) Environmental audit of selected sites.																				
B) Assess current source reduction and recycling practices.																				
C) Assess alternative source reduction and recycling practices.																				
D) Identify the environmental and economic benefits of source reduction and recycling.																				
E) Cost/Benefit analysis.																				
F) Produce Final Report.																				

XIII. SUPPORTING TECHNICAL ASSISTANCE EFFORTS

Objective:

OSW will ensure that the Pollution Prevention Information Clearinghouse (PPIC) provides adequate information on RCRA-related source reduction and recycling, and to support State technical assistance efforts. The PPIC is the Agency's foundation for all technical assistance since such assistance is a critical element in the ultimate success of any waste minimization program or approach. For more information on how to access PPIC, call 1-703-821-4800. OSW plans to:

- continue to develop, contribute to, and review technical information in the PPIC,
- support demonstration projects that will result in additional information, and
- develop RCRA- and hazardous waste-specific pollution prevention information to be added to the PPIC.

Background:

EPA's PPIC can be used to support permit writers in their efforts to address a facility's needs in an effective and environmentally protective fashion. In order to be effective, PPIC must compile as much RCRA-specific information on waste minimization and pollution prevention as possible, and update that information regularly. Such an effort will require the following activities:

- the information must be developed through such means as pilot and demonstration programs;
- the information must be transferred to those interested in waste minimization or pollution prevention activities; and
- the information must be used as a part of the program's or activity's implementation.

This can be accomplished through cooperative agreements, regulatory development, facility permitting programs, or enforcement actions, depending on the particular situation.

This type of support and information development will enable the PPIC to increase the resources provided for the States and EPA to carry out standard-setting and permitting activities discussed in sections I, VI, VII, XI of the Action Plan, in addition to the inspection and enforcement activities discussed in section II of the Action Plan.

Activity Description:

This objective will be achieved by:

- helping the PPIC staff market PPIC services and training to RCRA Headquarter, Regional and State staff;
- developing strategy to incorporate RCRA specific information into the PPIC;
- developing RCRA-related source reduction and recycling compendiums for those processes that generate RCRA listed wastes -- beginning with those wastes containing chemicals targeted by the 33/50 Project -- to be included and distributed by the PPIC;
- participating in the PPIC staffs evaluation of PPIC's RCRA needs; and
- continuing to fund the National Roundtable of State Pollution Prevention Programs.

Cross Reference to Activities: I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV

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XIII. SUPPORTING TECHNICAL ASSISTANCE EFFORTS

	FY92				FY93				FY94				FY95				FY96			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
XIII.1 Coordinate marketing of logon and input training for Regional RCRA waste minimization technical experts. Provide PPIC work stations as needed to Regional personnel. Responsibility: Lead: WMD\WMB and ORD (OEETD) PPIC																				
XIII.2 Develop source reduction and recycling compendia for which information is available for all processes that generate RCRA listed (not characteristic) wastes to be included and distributed by the PPIC. Responsibility: Lead: WMD\WMB; Team: OSW\CAD, ORD																				
XIII.3 Develop strategy for incorporating RCRA specific information into PPIC. Responsibility: Lead: ORD; Team: WMD\WMB																				
XIII.4 Develop strategy to increase use of PPIC by RCRA waste minimization technical experts. Encourage marketing the RCRA specific information (with respect RCRA listed waste and topics) contained in the system. Also assist PPIC in marketing study to understand the needs with respect to RCRA wastes and topic. Responsibility: Lead: ORD; Team: WMD\WMB																				
XIII.5 Continue funding to the Roundtable. Responsibility: Lead: WMD\WMB and OPPT																				

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